

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Claims 1-19 (Cancelled).

20. (Previously Presented) A process for producing an unsaturated carboxylic acid which comprises subjecting an alkane, or a mixture of an alkane and an alkene, to a vapor phase catalytic oxidation reaction in the presence of a catalyst comprising a mixed metal oxide having the empirical formula



wherein M is an element selected from the group consisting of Te, Sb and Nb,

wherein X is an element selected from the group consisting of Sc, Y, La, Re, Ir, Cu, Ag, Au, Zn, Ga, Si, Ge, As, Pb, S, Se, Sn, Bi, F, Cl, Br and I, and

wherein, when $a = 1$, $b = 0.01$ to 1.0 , $c = 0.01$ to 1.0 , $d = 0$ to 1 and e is dependent on the oxidation state of the other elements;

with the proviso that, when $d = 0$, M is selected from the group consisting of Nb and Te, and

with the further proviso that, when $d = 0$ and $M = \text{Te}$, $0.01 \leq b < 0.50$ or $0.17 < c \leq 1.0$.

Claim 21 (Cancelled)

22. (Previously Presented) The process for producing an unsaturated carboxylic acid according to claim 20, wherein said catalyst is produced by a synthesis process comprising:

- (i) admixing compounds of elements Mo, V, M and X, as needed, and a solvent comprising water to form a first admixture containing at least 2 but less than all of said elements Mo, V, M and X;
- (ii) heating said first admixture at a temperature of from 80°C to 150°C for from 5 minutes to 48 hours;

- (iii) then, admixing compounds of elements Mo, V, M and X, as needed, with said first admixture to form a second admixture containing elements Mo, V, M and X, in the respective atomic proportions a, b, c and d, wherein, when $a = 1$, $b = 0.01$ to 1.0 , $c = 0.01$ to 1.0 and $d = 0$ to 1 ;
- (iv) heating said second admixture at a temperature of from 50°C to 300°C for from 1 hour to several weeks, in a closed vessel under pressure;
- (v) recovering insoluble material from said closed vessel to obtain a catalyst.

23. (Previously Presented) The process for producing an unsaturated carboxylic acid according to claim 22, wherein said synthesis process further comprises calcining said recovered insoluble material.

24. (Previously Presented) The process for producing an unsaturated carboxylic acid according to claim 23, wherein said calcination comprises heating said recovered insoluble material to a first temperature in an oxidizing atmosphere, then heating the so-treated recovered insoluble material from said first temperature to a second temperature in a non-oxidizing atmosphere.

25. (Previously Presented) The process for producing an unsaturated carboxylic acid according to claim 22, wherein said first admixture comprises the elements Mo, M and X.

26. (Previously Presented) The process for producing an unsaturated carboxylic acid according to claim 25, wherein $M = \text{Te}$.

Claims 27-31. (Cancelled).